



Wellhead Reformer for Electricity Production and Other Applications

Novorocs Technologies, Blaise Energy, UND, Halcon

Presented by:

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Agenda



- Introduction to Technology
- Technology Validation
- Why This is Unique
- Goals & Objectives
- Methodology & Timeline
- Benefits to North Dakota
- Questions





Introduction to Technology

Technical & Commercial Solution

- Don't separate NGLs. Convert NGLs to CH₄
- Single reactor, catalytic process
- Much lower capital & operating costs
- Scalable to smaller wells (50 500 mcfd)
- Highly mobile and can easily be moved from well site to well site





Technology Validation



- Proof-of-Concept Reactor
 Demonstrated on 2 Wells
 - $-70\% \text{ CH}_4/25\% \text{ HC} \rightarrow 87\% \text{ CH}_4$
 - $-78\% \text{ CH}_4/17\% \text{ HC} \rightarrow 93\% \text{ CH}_4$



- 1 MW Pilot Scale Reactor
 - Deployed in 2015
 - 300 mcfd



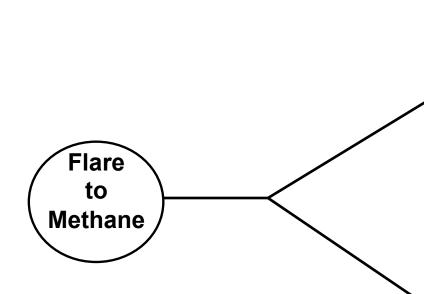








Why This is Unique



Clean Flaring

- 95% Lower Criteria
 Pollutants
 - Title 1 Compliance

Alternative Fuel Apps

- Bi Fuel Rigs/Fracs
- CNG / Transportation
- Power Generation







Goals & Objectives

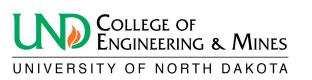


Goal

Prove Technical and Commercial Viability for ND

Objectives

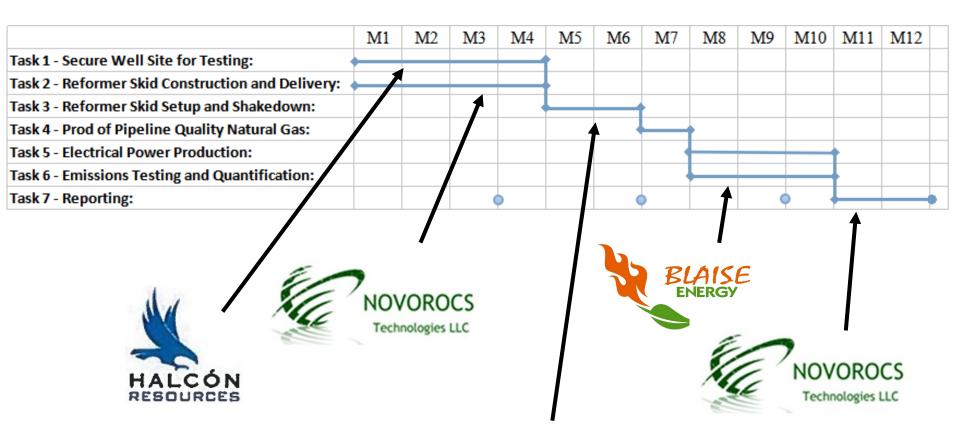
- Demonstrate Full Systems Approach
 - Methane for Bi Fuel Apps., CNG, Power, Clean Flaring
- Quantify Emissions Reduction
- Economic Analysis for Commercial Viability







Methodology & Timeline









Benefits to North Dakota

- Foster New Technologies & Methods
- Monetize Associated Petroleum Gas
 - Cost Savings w/Bi Fuel, Transportation, & Well Site Power
- Reduce GHG and Criteria Pollutants
 - 95% Lower Emissions than Current Flaring Tech
- Create New Jobs
 - Manufacturing, Distribution, & Service









Thank You

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Blaise CNG Trucks





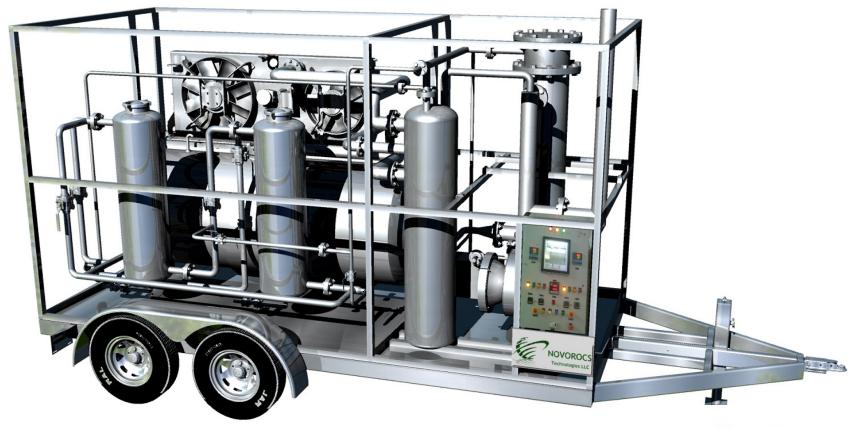








HALCON Demonstration Prototype



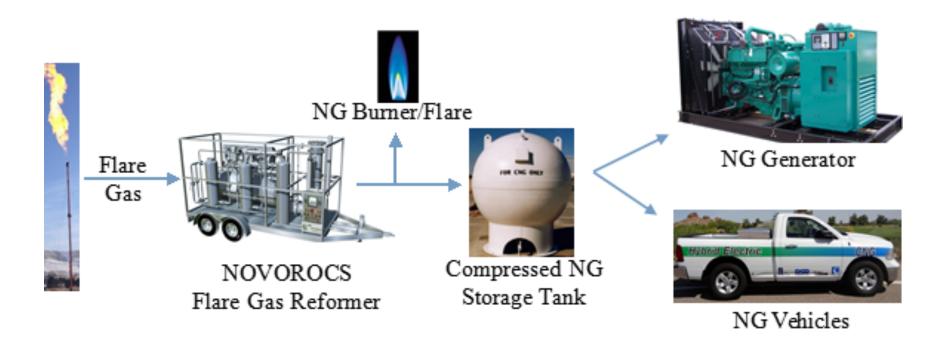








Proposed Demonstration System









Market



\$15 Billion
Total Addressable
Market

(5 trillion cubic feet of gas flared annually)

\$310 Million Served Available Market

(4,000 Wells Flaring in ND)

\$150 Million
Initial Target
Market
(2,000 Wells sized for the mobile flare gas system)



